

## CLAIMS

What is claimed is:

1. A method for fabricating a thermally-enhanced wafer-level chip scale package, comprising the steps of:

5 (1) preparing a semiconductor wafer having a front side and a back side, and which is predefined into a plurality of integrated circuit chips;

(2) performing a bumping process to bond a plurality of solder bumps on the front side of the semiconductor wafer;

10 (3) performing a back-side lapping process to grind away a back-side portion of the semiconductor wafer;

(4) attaching a thermally-conductive stiffener to the back side of the semiconductor wafer;

(5) performing a singulation process to cut apart each chip from the semiconductor wafer; and

15 (6) performing a flip-chip die bonding process to mount each singulated chip by means of the solder bumps onto a circuited substrate.

2. The method of claim 1, wherein in said step (4), the thermally-conductive stiffener is attached by means of silver epoxy to the semiconductor wafer.

20 3. The method of claim 1, wherein in said step (4), the thermally-conductive stiffener is made of copper.

4. The method of claim 1, wherein in said step (4), the thermally-conductive stiffener is made of a copper alloy.

5. A wafer-level chip scale package, which comprises:

(a) a circuited substrate;

25 (b) a semiconductor chip having an active surface and an inactive surface;

(c) a plurality of solder bumps bonded on the active surface of the semiconductor chip for bonding the semiconductor chip to the circuited substrate through flip-chip technology; and

(d) a thermally-conductive stiffener adhered to the inactive surface of the semiconductor chip.

6. The wafer-level chip scale package of claim 5, wherein the thermally-conductive stiffener is attached by means of silver epoxy to the semiconductor wafer.

7. The wafer-level chip scale package of claim 5, wherein the thermally-conductive stiffener is made of copper.

10 8. The wafer-level chip scale package of claim 5, wherein the thermally-conductive stiffener is made of a copper alloy.

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